



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,292	09/29/2003	Hironori Hasei	9319G-000567	3126
27572	7590	08/24/2006		
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303				
			EXAMINER TADESSE, YEWEBDAR T	
			ART UNIT 1734	PAPER NUMBER

DATE MAILED: 08/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/674,292

Applicant(s)

HASEI ET AL.

Examiner

Yewebdar T. Tadesse

Art Unit

1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 5,6 and 16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5,6 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) The invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 5-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Furusawa et al (US 2003/0232128 A1).

Furusawa et al discloses (see paragraphs 85, 98-101 and Figs 2A, 5A and 5B) a device for forming a wiring comprising a liquid drop ejecting device for ejecting liquid drops onto a substrate by scanning on the substrate in at least first and second scanning movements (inkjet head scanning for P2 and P3); and a surface treatment device for surface treating the substrate wherein the device ejects liquid drops on the substrate such a predetermined regular interval is formed in the first scanning movement, the predetermined interval capable of being twice a diameter of the previously-ejected liquid drop or less, the liquid drops ejected in the scanning movement are disposed to fill the predetermined regular intervals, and the substrate is surface-treated by the surface treatment device so that a contact angle of the ejected liquid drops with respect to the substrate is in predetermined range 30° to 60° (overlapping the claimed range of 15° to 45°).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 5-6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiguchi et al (US 6,599,582) in view of Miyamoto et al (US 2002/0015800 A1).

With respect to claims 5-6, Kiguchi et al discloses (see Fig 13, column 14, lines 26-53 and column 4, lines 50-61) a device for forming a wiring (wiring patterns, see column 1, lines 21-23) comprising a liquid drop ejecting device for ejecting liquid drops onto a substrate by scanning on the substrate in at least first and second scanning movements; and a surface treatment device for surface treating the substrate wherein

the ejected liquid drops are disposed on the substrate such that predetermined regular intervals are formed therebetween in the first scanning movement, the liquid drops ejected in the scanning movement are disposed to fill the predetermined regular intervals, and the substrate is surface-treated by the surface treatment device so that a contact angle of the ejected liquid drops with respect to the substrate is in predetermined range (small contact angle). Kiguchi et al lacks specifically teaching the contact angle of the liquid droplet with respect to the substrate is in a range of 15° to 45°. Miyamoto et al discloses (see paragraphs 2, 9 16, 45, 60, 67 and 71; Abstract and Fig 1) a thin film manufacturing device (thin film patterned electronic devices) which is provided with a liquid drop ejecting device (ink jet head 10) for ejecting a liquid drop to a substrate and a surface treatment device for performing a surface treatment for a surface of the substrate (see paragraph 71 for treatment chamber) wherein the device for performing a surface treatment performs a surface treatment such that a contact angle of the liquid drops which are ejected from the liquid drop ejecting device is in a predetermined range of 15° to 45° (the contact angle of droplet applied to the substrate falls within 20°-50°, overlapping the claimed range). It would have been obvious to one of ordinary skill in the art at the time the invention to include the contact angle of the liquid droplet with respect to the substrate is in a range of 15° to 45° in Kiguchi et al to form the desired component to the substrate surface.

With respect to claim 16, Kiguchi et al discloses (see column 17, lines 30-67) wherein the predetermined regular intervals are determined by controlling a relative

Art Unit: 1734

speed of the liquid drop ejecting device with respect to the substrate; and a frequency of the ejection by the liquid drop ejecting device.

6. Claims 5-6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiguchi et al (US 6,599,582) in view of Duineveld et al (US 2002/0060518 A1).

With respect to claims 5-6, Kiguchi et al discloses (see Fig 13, column 14, lines 26-53 and column 4, lines 50-61) a device for forming a wiring (wiring patterns, see column 1, lines 21-23) comprising a liquid drop ejecting device for ejecting liquid drops onto a substrate by scanning on the substrate in at least first and second scanning movements; and a surface treatment device for surface treating the substrate wherein the device ejects the liquid drops on the substrate such that a predetermined regular interval are formed in the first scanning movement, the predetermined interval capable of being twice a diameter of the previously-ejected liquid drop or less, the liquid drops ejected in the scanning movement are disposed to fill the predetermined regular intervals, and the substrate is surface-treated by the surface treatment device so that a contact angle of the ejected liquid drops with respect to the substrate is in predetermined range (small contact angle). Kiguchi et al lacks specifically teaching the contact angle of the liquid droplet with respect to the substrate is in a range of 15° to 45°. Duineveld et al discloses (see paragraph 19, 82 and 92) a thin film manufacturing device (EL device manufacturing system) which is provided with a liquid drop ejecting device (ink jet printing heads) for ejecting a liquid drop to a substrate and a surface treatment device for performing a surface treatment for a surface of the substrate

Art Unit: 1734

wherein the device for performing a surface treatment performs a surface treatment such that a contact angle of the liquid drops which are ejected from the liquid drop ejecting device is in a predetermined range capable of being 15° to 45° (anti-wetting treatments such as plasma treatments, corona discharge and surfactants used to treat the surface of the substrate to attain contact angles of more than 50°, 60°, 70° or 80°). It would have been obvious to one of ordinary skill in the art at the time the invention to include the contact angle of the liquid droplet with respect to the substrate is in a range of 15° to 45° in Kiguchi et al to form the desired component to the substrate surface.

With respect to claim 16, Kiguchi et al discloses (see column 17, lines 30-67) wherein the predetermined regular intervals are determined by controlling a relative speed of the liquid drop ejecting device with respect to the substrate; and a frequency of the ejection by the liquid drop ejecting device.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Furusawa et al (US 2003/0232128 A1) in view of Kiguchi et al (US 6,599,582).

Furusawa et al lacks teaching the predetermined regular intervals are determined by controlling a relative speed of the liquid drop-ejecting device with respect to the substrate; and a frequency of the ejection by the liquid drop-ejecting device. However, Kiguchi et al discloses such feature (see column 17, lines 30-67). It would have been obvious to one of ordinary skill in the art at the time the invention to include the capability of predetermining the regular intervals by controlling a relative speed of the liquid drop ejecting device with respect to the substrate; and a frequency of the ejection

by the liquid drop ejecting device in Furusawa et al to apply the droplets in the desired location.

***Response to Arguments.***

8. Applicant's arguments filed on 05/22/2006 have been fully considered but they are not persuasive. Applicants argue that neither Furusawa et al nor Kiguchi et al disclose or suggest the claimed device of claim 5. Examiner respectfully disagrees because Furusawa et al, Kiguchi et al and Duineveld et al alone or in combination meet applicants' claimed limitation. As described above, Furusawa et al (see also paragraph 2) and Kiguchi et al devices eject liquid droplets having a predetermined regular intervals between the ejected liquid drops, wherein the predetermined interval is capable of being twice a diameter of the previously-ejected liquid drop or less. It is noted that the limitation that "the predetermined interval being twice a diameter of the previously-ejected liquid drop or less" is intended use of the apparatus. Furusawa and Kiguchi et al inkjet print heads scan the substrate depending the desired patterns applied on the substrate. Additionally, it is known that the patterns applied on the substrate depend on the nozzle pitch (distance or interval between two adjacent nozzles) or type of coating material used. By controlling the nozzle pitch, movement of the print heads and types of coating material, one in the art can control the patterning of coating material on the substrate. Furusawa et al, Kiguchi et al and Duineveld et al disclose print heads scanning the substrate as desired to apply the desired pattern. As such the claimed intended use limitation is met by these references as described above.



Art Unit: 1734

Furthermore, a claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus shows all of the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) **Furthermore, “expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim.”** *Ex parte Thibault*, 164 USPQ 666,667 (Bd. App. 1969). Thus, the “inclusion of material or article worked upon does not impart patentability to the claims.” *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 (USPQ 458, 459 (CCPA 1963)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yewebdar T. Tadesse whose telephone number is (571) 272-1238. The examiner can normally be reached on Monday-Friday 8:00 AM-4: 30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

